

Notice of Allowability

Application No.

09/739,975

Examiner

Timothy L Rude

Applicant(s)

FUKUSHIMA ET AL.

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 29 August 2003.
2. ☒ The allowed claim(s) is/are 1,2,5-7,14,15 and 18.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☒ including changes required by the proposed drawing correction filed 19 August 2002, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____ | 7 <input type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

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DETAILED ACTION

Claims

Claims 8-11 are canceled.

Allowable Subject Matter

Claims 1, 2, 5-7, 14, 15, and 18 are allowed.

The following is an examiner's statement of reasons for allowance:

As to claims 1 and 14, relevant prior art of record did not disclose, alone or in combination, a liquid crystal display element as claimed, comprising: an anti-ferroelectric liquid crystal material with a shifted angle between the extending direction and an optical axis of a batonnet within about $\pm 1^\circ$ and wherein the first and second rubbed alignment layers have a surface tension of 49 dyn/cm to 53 dyn/cm. The closest combination is Tanaka in view of Nakamura. Tanaka teaches an anti-ferroelectric liquid crystal material sandwiched between said first and second electrode substrates covered with first and second alignment layers and which has a thresholdless voltage-transmittance characteristic, wherein said first and second alignment layers are combined with said liquid crystal material so that the angle between the rubbing directions is 6.8 degrees (col. 3, para 0013) (narrow range includes Applicant's shifted angle between the extending direction and an optical axis of a batonnet is within ± 1 degree). Applicant's Figure 3 shows the shifted angle between the extending direction

and an optical axis of a batonnet, $(\theta_{OA}-\theta_B)$, is within ± 1 degree for all examples where the angle of the optical axis, θ_{OA} , is less than 7 degrees (half the 14 degree angle between the rubbing directions). Tanaka's angle between the rubbing directions is only 6.8 degrees which is much less than 14 degrees, so the resulting shifted angle between the extending direction and an optical axis of a batonnet might be within ± 1 degree, per Applicant's Figure 3.

Tanaka does not explicitly disclose an element, wherein said first and second alignment layers have a surface tension of 49 dyn/cm to 53 dyn/cm.

Nakamura teaches in Example 1 (col. 16, lines 65-69) the use of a surface tension of 50 dyn/cm to establish uniform alignment and improve contrast (col. 17, lines 25-31). Nakamura also teaches in Example 9 (col. 20, lines 64-67) the use of a surface tension of 49 dyn/cm to establish uniform alignment and improve contrast.

However, it is considered not obvious to apply the teachings of Nakamura to the display of Tanaka because the motivation with respect to the batonnet angle is lacking, so one cannot reasonably predict the claimed critical feature would be obtained by the combination of Nakamura to Tanaka.

As to claims 2, 5-7, 15, and 18, they are directly or indirectly dependent upon claims with allowable subject matter above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



TLR
November 26, 2003

Timothy L Rude
Examiner
Art Unit 2871



Y. O. ANTON
PRIMARY EXAMINER